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February 4, 2022
Illinois Commerce Commission
527 E Capitol Ave
Springfield, IL 62701

To: Illinois Commerce Commission

RE: Energy Storage Comments on mechanisms, policies

The Union of Concerned Scientists is a national organization with 50 years of experience putting science into action to build a healthier planet, a more equitable society, and a safer world. Our half-million members and supporters include everyday people as well as some of the nation's top scientists, and our distinctive UCS Science Network draws upon more than 25,000 scientists and technical experts across the country to assist our local, state, and national efforts. Working together, we advance science-based solutions to some of the world's most pressing problems, conducting rigorous technical analyses and mobilizing our supporters to educate decisionmakers and advocate for change.

Energy storage has the potential to help achieve ambitious clean energy goals to address climate change, such as those set by Illinois' groundbreaking Climate and Equitable Jobs Act. Proper policy design can maximize key benefits of energy storage deployment, such as reductions in climate-warming emissions, flexibility in grid operations and other reliability services, improvement in public health and air quality, community resilience, and reductions in expensive demand charges, while also unlocking benefits for frontline and fenceline communities.[1] Since 2018, the Union of Concerned Scientists has been working to identify and model policies that incorporate equity at the outset and prioritizing storage applications that directly benefit communities beyond accommodating high levels of renewable energy on the grid and therefore driving reductions in global warming emissions.

The Energy Storage Association has discussed three main categories of policy tools: tools that help capture the full value of energy storage, tools that enable competition in grid planning and procurements, and tools that ensure fair and equal access for storage to the grid and markets.[2] Policy mechanisms to help capture the full value of energy storage include targets, incentives, financing, cost-benefit studies, rate design, as well as energy efficiency, demand response, and non-wired alternatives programs.

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[1] UCS, *How to Ensure Energy Storage Policies are Equitable*, 2019. https://www.ucsusa.org/sites/default/files/2019-11/Ensure-Energy-Storage-Policies-Equitable-Brief.pdf

[2] Energy Storage Association (ESA). 2017. *State Policies to Fully Charge Advanced Energy Storage: The Menu of Option*s. Washington, DC. https://energystorage.org/wp/wp-content/uploads/2019/09/state_policy_menu_for_storage_0.pdf

In addition, in order to fully integrate all the benefits of energy storage, policies should support storage as a transmission asset, a distribution asset, and as a behind the meter asset.[3] To support storage as a transmission assets, regulators can support with clear technical interconnection processes and rules, clear participation rules, the ability for storage to seek fair renumeration, and with regulatory support for pilot projects. When it comes to distribution-level services, regulatory support for pilots is again important as well as technical regulations specifying storage capabilities and behavior, addressing nontechnical barriers around ownership and value stacking, ensuring energy storage is considered in other planning processes such as integrated grid planning, and regulations that explicitly allow energy storage to provide multiple services as well as allowing for innovative shared ownership approaches and other innovative business models. For behind the meter storage, decision makers can enable interconnection and potentially guide customer decisions in a way that can also support grid needs through appropriate policy design that enables interconnection as well as both implicit and active service provision.

**Incorporating equity into energy storage policy mechanisms**

Many states have combined one or more policy instruments to spur storage development. Some resources track recent developments in state policies related to clean energy, including the Database of State Incentives for Renewables and Efficiency[4], the State Policy Opportunity Tracker,[5] and the DOE Global Energy Storage Database, which has a State Policies page.[6]

When it comes to ensuring equity in procurement targets, Jeremy Richardson writes:

> "Key considerations in setting a storage target include whether the procurement target provides a long-term policy signal, whether it is binding, what technologies qualify, and whether it ensures a competitive framework with multiple applications and ownership structures.[7] To consider equity, policymakers can include carve-outs or set-asides specifying that some portion of the target should be met with projects that are designed to benefit underserved communities directly through reduced air pollution or improved resiliency. Cost containment mechanisms, cost recovery restrictions, and a competitive procurement process are additional requirements that can be incorporated into procurement targets to ensure that storage projects minimize costs to ratepayers and do not unduly burden low-income customers, while maximizing societal benefits."[8]

Incentive programs can make it more affordable for utilities and consumers—especially businesses, churches, low-income households, multifamily affordable housing, and schools in underserved communities—to invest in both behind the meter and front of meter battery storage, or that stimulate project developers to find new market opportunities for storage. A

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[3] https://www.nrel.gov/docs/fy21osti/78815.pdf
[4] www.dsireusa.org
[5] www.spotforcleanenergy.org
[6] https://sandia.gov/ess-ssl/gesdb/public/policy.html
[7] Cramer, Jeff. 2017. "Energy Storage State Policy Update." Presented for CELA webinar. November 15, 2017. https://cnee.colostate.edu/wp-content/uploads/2017/07/Cramer_LatestEnergyStorage.pdf
[8] UCS, *How to Ensure Energy Storage Policies are Equitable*, 2019. https://www.ucsusa.org/sites/default/files/2019-11/Ensure-Energy-Storage-Policies-Equitable-Brief.pdf

renewable energy standard can incentivize energy storage deployment through eligibility for compliance—that is, providers could install storage to earn renewable electricity credits. To ensure equity, storage could be further incentivized through credit multipliers, or adders, tied to developing projects in underserved communities. Importantly, inclusion of storage as an eligible technology must be restricted, to prevent the double counting of renewable energy generation for compliance purposes, since storage can both discharge and store electricity. In addition, Massachusetts has enacted a novel Clean Peak Standard[9]. The standard is intended to incentivize technologies, such as energy storage, that can supply electricity or reduce demand during peak demand periods.

According to UCS' *How To Ensure Energy Storage Policies are Equitable*, here are some recent examples of what states are doing on storage and how to highlight the needs of and benefits to vulnerable communities:[10]

Only two states—California and New York—have established broad clean energy policies aimed at addressing equity issues. Thanks to growing pressure from environmental justice leaders and their allies, the state has been among the first to develop policies aimed at addressing the cumulative impacts of pollution in disadvantaged communities and driving clean energy investments there. California adopted an energy storage target in 2010 and increased the target to 1,325 MW by 2020, with an additional requirement of 500 MW of distributed (behind-the-meter) storage aimed at serving the public sector and low-income customers. Separately, California also drives storage deployment through the Self-Generation Incentive Program (SGIP) for distributed energy resources.[11] The program includes an equity component that directs 25 percent of funding for distributed energy storage toward "low income households and environmentally burdened communities throughout the state."[12] The total value of the SGIP Equity Budget is about $70 million, but it remains untouched in large part due to a difficult application process and lack of outreach and education about the program.[13]

In addition to correcting these program design barriers, advocates recommend increasing the level of the incentive, to drive investments in low-income communities; improving pairing with low-income solar programs; and considering an additional incentive to stimulate projects in low-income areas that are particularly susceptible to climate change impacts.[14]

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[9] Massachusetts General Court. 2018. An Act to Advance Clean Energy. Chapter 227. Accessed October 5, 2019. https://malegislature.gov/Laws/SessionLaws/Acts/2018/Chapter227

[10] UCS, *How to Ensure Energy Storage Policies are Equitable*, 2019. https://www.ucsusa.org/sites/default/files/2019-11/Ensure-Energy-Storage-Policies-Equitable-Brief.pdf

[11] California Public Utilities Commission (CPUC). n.d. "About the Self-Generation Incentive Program." Accessed October 5, 2019. http:// www.cpuc.ca.gov/General.aspx?id=11430.

[12] California Public Utilities Commission (CPUC). 2017. "CPUC Directs Investment for energy Storage Projects to Customers Located in Disadvantaged and Low Income Communities." Press release. Docket #: R.12-11-005. October 13, 2017. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M197/K258/197258268.PDF

[13] Disadvantaged Communities Advisory Group (DACAG). 2019. "Item 5 Draft Letter to the CPUC on the Self-Generation Incentive Program Residential Equity Budget." CEC Docket 16-OIR-06. Accessed October 5, 2019. https://efiling.energy.ca.gov /GetDocument.aspx?tn=228796-5&DocumentContentId=60125.

[14] Mango, Marriele, and Annie Shapiro. 2019. *Home Health Care in the Dark: Why Climate, Wildfires, and Other Emerging Risks Call for Resilient Energy Storage Solutions to Protect Medically*

The California Public Utilities Commission adopted a rule that nearly doubles the energy storage incentive level for low-income projects, includes tribal communities, and increases awareness of the program through education and outreach[15]. It also establishes a first-of-its-kind equity resilience program to prioritize storage for those facing a high risk of power outage from wildfires.[16]

In 2019, New York passed a law setting a procurement target for energy storage of 3,000 MW by 2030 and directing the public service commission to specify the minimum fraction of storage projects that should deliver benefits to underserved communities. The law also mandates that storage be deployed to displace polluting peaker plants.[17]

Smaller-scale storage policies with a focus on equity have been enacted in a few states and territories, representing opportunities for learning, strengthening, and expanding the suite of policies:

- Massachusetts offers a few programs that aim to prioritize clean energy in underserved communities. One is the Solar Massachusetts Renewable Target[18] program, which includes an energy storage adder and incentives for projects in low-income neighborhoods.[19] Unfortunately, as of March 2019, only 2.3 percent of capacity in submitted applications is eligible for the low-income incentive, because of the insufficient level of the incentive, the inability of developers to identify low-income customers because the data determining who qualifies are confidential, and difficulty securing financing for such projects.[20] The Massachusetts Community Clean Energy Resiliency Initiative has granted $40 million to support resiliency in

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*Vulnerable Households from Power Outages*. Montpelier, VT: Clean Energy Group. http://www.cleanegroup.org/wp-content/uploads/Home -Health-Care-in-the-Dark.pdf

[15] California Public Utilities Commission (CPUC). 2019. "Decision Establishing a Self-Generation Incentive Program Equity Resilience Budget." Rulemaking 12-11-005. Decision 19-09-027. September 12, 2019. http://docs.cpuc.ca.gov/PublishedDocs /Published/G000/M313/K975/313975481.PDF .

[16] Mullendore, Seth. 2019. "California Aims to Fix Low-Income Storage Program and Deliver New Resilience Incentives." Clean Energy Group (Blog). September 4, 2016. https://www.cleanegroup.org/california-aims-to-fix-low-income-storage-program-and-deliver-new-resilience-incentives

[17] New York Battery and Energy Storage Technology Consortium (NY-BEST). 2019. NY-BEST Policy Update. Albany, NY. https://www .ny-best.org/sites/default/files/resources/Policy%20Update%208 .9.2019.docx.

[18] Solar Massachusetts Renewable Target Program (SMART). n.d. "Building a Brighter Future for Massachusetts." Accessed October 5, 2019. http://masmartsolar.com.

[19] Knight, Pat, Danielle Goldberg, Erin Malone, Asa Hopkins, and Doug Hurley. 2018. *Getting SMART: Making Sense of the Solar Massachusetts Renewable Target (SMART) Program.* Cambridge, MA: Synapse Energy Economics. https://www.synapse-energy.com/sites/default/files/Getting-SMART-16-069.pdf

[20] Shemkus, Sarah. 2019. "Activists Say Massachusetts Incentives Not Enough to Spur Low-Income Solar." Energy News Network, May 21, 2019. https://energynews.us/2019/05/21/northeast/activists-say-massachusetts-incentives-not-enough-to-spur-low-income-solar

critical facilities—such as shelters, hospitals, and wastewater treatment plants—some of which have included clean energy microgrids and solar with storage.[21]

- Puerto Rico, as part of Community Development Block Grants for disaster recovery, has received approval to direct $436 million to its Home Emergency Resilience Program, which would support solar and storage installations.[22]

- Maryland is currently the only state that has adopted its own ITC for storage, which has driven modest investments in residential systems in the past two years. Lack of availability of the tax credit for third-party ownership has hampered development and there are no additional incentives to drive investments in underserved communities.[23] However, in fiscal year 2019, the Maryland Energy Administration offered $5 million through its Resiliency Hub program for solar and storage projects in low- and moderate-income neighborhoods, to support residents during power outages.

Our testimony in coalition with a number of clean energy advocates in a Pennsylvania docket on utilizing storage as a distribution asset also cited a number of state policies that center equity:[24]

> "A growing number of states, including Connecticut and Maryland, are making equity considerations central to their decision-making concerning storage deployments. To start, Connecticut's Electricity Storage Program features a consistent focus on equitable outcomes and the protection of low-income customers, including not just transparent metrics (e.g., the tracking of residential storage installations in low-income households), but also a target for 40 percent of residential storage systems to be installed in such households, along with an upfront incentive for residential storage owners in environmental justice communities.[25]
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> Maryland's Energy Storage Pilot Program provides another good model for both equity and transparency in storage deployment. In the docket that established the Program, the Maryland Public Service Commission ("MD PSC") directed the state's Energy Storage Working Group, which included EDCs, the Energy Storage Association, and PJM, to recommend a list of metrics for use by the MD PSC in assessing energy storage projects proposed by EDCs.[26] In a report released in December 2019, the working group recommended the recognition of societal benefits, such as the provision of reliable and affordable electricity to low- and

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[21] Commonwealth of Massachusetts (MASS). n.d. "Community Clean Energy Resiliency Initiative." Accessed October 5, 2019. http:// www.mass.gov/community-clean-energy-resiliency-initiative.
[22] Milford, Lew. 2018. *A Plan to Use Federal Recovery Funds for Resilient Power in Puerto Rico.* Montpelier, VT: Clean Energy Group. http:// www.cleanegroup.org/ceg-resources/resource/a-plan-to-use-federal-recovery-funds-for-resilient-power-in-puerto-rico.
[23] Gerdes, Justin. 2019. "Maryland's Pioneering Energy Storage Income Tax Credit Turns 2." Greentech Media, March 18, 2019. http:// www.greentechmedia.com/articles/read/marylands-pioneering-energy-storage-income-tax-credit-turns-two
[24] https://www.puc.pa.gov/pcdocs/1726274.pdf
[25] Connecticut Public Utilities Regulatory Authority ("CT PURA"), *Investigation Into Distribution System Planning of the Electric Distribution Companies - Electric Storage,* Docket No. 1712-03RE03, Decision, at 13, 50 (July 28, 2021), https://perma.cc/VE73-BN73.
[26] MD PSC, *In the Matter of the Maryland Energy Storage Pilot Program*, Case No. 9619, Order Establishing an Energy Storage Pilot Program (Aug. 23, 2019), https://perma.cc/HW4V-LS44.

> moderate-income residents, seniors, or schools, as a qualitative value stream and recommended that project applications specifically identify such benefits."[27]

Maryland's pilot program allows for projects to both serve local distribution needs and sell power into wholesale markets when not serving distribution needs.[28] The program also outlines four different regulatory models for participating storage projects: (1) "utility-only," in which the EDC owns and operates an energy storage project for both distribution services and other applications, including wholesale markets;[29] (2) "utility and third party," in which the EDC owns and operates an energy storage project for distribution purposes and a third-party operates the project in wholesale markets and other applications;[30] (3) "thirdparty ownership," in which a third-party would own the project and contract with an EDC for distribution services, and the third-party would be allowed to also use the project for other applications, including wholesale markets, when not providing distribution services;[31] and (4) a "virtual power plant" model in which an EDC would aggregate or use a third-party aggregator to receive distribution services from distributed energy storage projects owned by customers or a third-party (with those projects authorized for use in other applications, including wholesale markets, when not providing distribution services).[32]

EDCs in Oregon, Massachusetts, Connecticut, New York, Vermont, and Rhode Island all have programs or pilots utilizing a virtual power plant model aggregating distributed storage or solar plus storage projects to meet distribution needs.[33]

In the Pennsylvnia docket on energy storage as distribution assets, NRDC wrote:

> "Vermont's investor-owned utility, Green Mountain Power ("GMP"), was the first utility company in the nation to offer its customers battery energy storage to be operated as a virtual power plant.[34] In 2017, GMP began a pilot program offering residential customers the opportunity to own a Tesla Powerwall battery system. Participating customers were offered a reduced price for the Powerwall and the option for a 10- year payment plan. In 2018, the pilot was extended to include a Bring Your Own Device (BYOD) option, which allows customers to purchase a battery storage system from a different provider and receive an incentive payment from GMP. In exchange for the reduced cost of the system or the BYOD incentive

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[27] PC 44 Energy Storage Working Group, In the Matter of the Maryland Energy Storage Pilot Program, Case No. 9619, Submission of the PC 44 Energy Storage Working Group (Dec. 2019), https://perma.cc/5D3N-DRUV .
[28] Id. § 7-216(c).
[29] Id. § 7-216(c)(1).
[30] Id. § 7-216(c)(2).
[31] Id. § 7-216(c)(3).
[32] Id. § 7-216(c)(4).
[33] Clean Energy States Alliance, Energy Storage Best Practices from New England, at 8 (Aug. 2021), https://perma.cc/MQ4E-VBKK; Eversource, *Battery Storage Demand Response Program FAQs* (2021), https://www.eversource.com/content/emac/residential/save-money-energy/manage-energy-costs-usage/demand-response/battery-storage-demandresponse/home-battery-storage-faqs; National Grid, *Battery Program: Using Your Battery Storage Device to Make the Grid More Sustainable* (2021), https://perma.cc/JV73-LBAP; Clean Energy Group, *An Introduction to Virtual Power Plants* (Sept. 28, 2020), https://perma.cc/JB4B-V5WV; Andy Colthorpe, *New York utility Con Edison recognizes value of home energy storage with new virtual power plant,* Energy Storage News (March 17, 2021), https://perma.cc/4NYP-ZNBT.
[34] https://www.puc.pa.gov/pcdocs/1693787.pdf

payment, customers agreed to allow GMP to remotely charge and discharge the batteries to create a virtual power plant. When not being dispatched by GMP, the battery systems provide resilience in the form of emergency backup power to the host customers. The pilot program attracted 2,000 participants." [35]

With regard to the locations in which storage is deployed as a distribution asset, it is critical that its reliability and resiliency benefits are equitably shared. As such, storage deployment in underserved neighborhoods should be prioritized and accompanied by a robust stakeholder process to engage with those communities. This will help improve the resilience of critical community facilities such as hospitals, fire stations, and shelters, as well as reduce the impacts of outages on ordinary residents, which is particularly important in areas that may have fewer resources than other areas. This will also help facilitate the development of distributed renewables and electrification projects in underserved neighborhoods, which can help support the development of local job opportunities in those neighborhoods. Finally, the financial benefits of savings on distribution infrastructure from the use of storage should also be equitably shared through reduced utility bills for customers, which is important for low-income ratepayers that spend a disproportionately high proportion of their household budget on energy.

Regardless of the policy tools or mechanisms being used, it is critical to incorporate planning processes that support robust participation from environmental justice and low-income communities to help identify locations where projects should be sited or not sited.[36]

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[35] Green Mountain Power. December 2018. *GMP Customers Keep Lights on With Stored Low Carbon Energy During Storm Outages*, available at https://greenmountainpower.com/gmp-customers-keep-lights-on-with-stored-low-carbon-energy-duringstorm-outages/.

[36] UCS, Principles of Equitable Policy Design for Energy Storage, at 1 (May 2019), https://perma.cc/8EUF-2LA9; See also Paula Garcia, East Boston, a Controversial Substation and Opportunities Ahead, UCS (Nov. 2019), https://perma.cc/G3WH-D6JS.